

REMARKS

Claims 1, 3-22, 25-30, and 32-51 are pending in the above-identified application, and were rejected. With this Amendment claims 1 and 30 were amended, and claims 55-60 were added. Accordingly, claims 1, 3-22, 25-30, 32-51, and 55-60 are at issue.

I. 35 U.S.C. § 103 Obviousness Rejection of Claims

Claims 1, 3-15, 18-19, 22, 25-30, 32-44, 47-48, and 51 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nafeh (U.S. Patent No. 5,343,251) in view of Nagao et al. (U.S. Patent No. 5,587,927). Applicants respectfully traverse this rejection.

Claim 1 is directed to a signal processing apparatus, which includes candidate-detecting means, characteristic-extracting means, and detecting means. The candidate-detecting means receives an input signal including at least the first signal part and remaining signal parts in a time-divided fashion. The candidate-detecting means also detects, from the input signal, a candidate part of the first signal part in accordance with characteristic patterns of the input signal at prescribed time intervals. The characteristic-extracting means extracts characteristic data indicating the probability of the first signal part from the candidate part detected by the candidate-detecting means or from signal parts preceding and following the candidate part. The detecting means detects the first signal part in accordance with the characteristic data extracted by the characteristic-extracting means. Claim 1 has been amended to clarify that the candidate-detecting means detects, from the input signal, the candidate part prior to the characteristic-extracting means extracting characteristic data from the candidate part.

Nafeh is directed to a method and apparatus for classifying patterns of television programs and commercials. (See Abstract). In Nafeh, broadcast audio and/or video signals are

received and decomposed into their components by audio and video decoders. (See col. 2, lines 55-60). Pre-processor 22 extracts the essential elements of the components, and feeds the extraction to the classifier module for signal discerning and pattern classification. (See col. 2, lines 60-65). Module 22 extracts the relevant information or features for the classification task by pre-processing the audio and video signal output of a signal source into a data stream of features. (See col. 3, lines 20-24). The sequence of feature vectors extracted using the preprocessor/feature extraction module are input into the network classifier. (See col. 5, lines 30-33). The total number of inputs to the network is equal to the number of samples $(n+1)$, multiplied by the number of indicators k in the feature vectors. The network consists of multiple layers of synaptic weights and of several hundreds to several thousands of inputs feeding hidden neurons, feeding to one output. (See col. 6, lines 13-18). The single output of the network is used to make a decision as to whether the broadcast is either a commercial or a program, following a detected transition. (See col. 6, lines 18-21).

Thus, unlike claim 1, which recites, in part, that (a) the candidate detecting means detects, from the input signal, a candidate part of the first signal part, (b) the characteristic-extracting means extracts characteristic data *from the candidate part* detected by the candidate-detecting means, and (c) the candidate-detecting means detects, from the input signal, the candidate part *prior to* the characteristic-extracting means extracting characteristic data from the candidate part, in Nafeh, all of the extracted features are provided to the network to determine whether the broadcast is a commercial or a program. Nafeh does not detect a candidate part prior to extracting characteristic data indicating the probability of the first signal part from the

candidate part. Thus, Nafeh does not disclose or suggest all of the limitations required by claim 1.

Nagao et al. is directed to a detecting apparatus for detecting a contour of a moving region in a dynamic image. The detecting apparatus in Nagao et al. includes a first-stage pixel classifying section for classifying pixels into a FIX type denoting that an observed pixel is positioned in a static region of the dynamic image, a MOT type denoting that the observed pixel is positioned inside the moving region, and an ACR type denoting that the observed pixel is positioned in a boundary region between the moving and the static region. (See Abstract.) The detecting apparatus further includes a second-stage pixel classifying section for re-classifying the pixels to match a classification type of the observed pixel with those of pixels surrounding the observed pixel, a contour candidate limiting section for limiting a region occupied by pixels re-classified into the ACR type as a candidate region, and a contour drawing section for drawing a contour of the moving section passing through a middle portion of the candidate region. (See Abstract.)

Thus, unlike claim 1, in Nagao et al., the pixels are not classified in time-divided fashion. As such, Nagao et al. does not disclose or suggest characteristic-extracting means for extracting characteristic data indicating the probability of the first signal part from the candidate part detected by the candidate-detecting means or from signal parts preceding and following the candidate part, where the input signal includes at least the first signal part and remaining signal parts in time-divided fashion.

Accordingly, it would not have been obvious to one of ordinary skill in the art at the time of the invention to use the signal processing system, as disclosed by Nafeh, and further

incorporate the system disclosed by Nagao et al. to derive claim 1, or claims 3-15, 18-19, 22, 25-29 that depend from claim 1.

For reasons similar to those discussed above with regard to claim 1, Applicants respectfully submit that independent claim 30, and claims 32-44, 47, 48, and 51 that depend from claim 30 are also allowable over Nafeh in view of Nagao et al. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 16, 20, 21, 45, 49, and 50 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nafeh (U.S. Patent No. 5,343,251) in view of Nagao et al (U.S. Patent No. 5,587,927), in further view of Shah-Nazaroff et al. (U.S. Patent No. 6,671,880). Applicants respectfully traverse this rejection.

As discussed above, neither Nafeh nor Nagao et al. discloses or suggests characteristic-extracting means for extracting characteristic data indicating the probability of the first signal part from the candidate part detected by the candidate-detecting means or from signal parts preceding and following the candidate part, where the input signal includes at least the first signal part and remaining signal parts in time-divided fashion, as required by claims 1 and 30. Thus, it would not be obvious to one skilled in the art at the time of the invention to modify the apparatus/method for classifying patterns of television programs and commercials as disclosed by Nafeh in view of Nagao et al. and incorporate the system disclosed by Shah-Nazaroff et al. to derive claims 16, 20 and 21 that depend from claim 1 or claims 45, 49 and 50 that depend from claim 30. Accordingly, Applicants respectfully request withdrawal of this rejection.

Claims 17 and 46 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nafeh (U.S. Patent No. 5,343,251) in view of Nagao et al (U.S. Patent No. 5,587,927), in further view of Kawara et al. (U.S. Patent No. 6,278,836). Applicants respectfully traverse this rejection.


As discussed above, neither Nafeh nor Nagao et al. discloses or suggests characteristic-extracting means for extracting characteristic data indicating the probability of the first signal part from the candidate part detected by the candidate-detecting means or from signal parts preceding and following the candidate part, where the input signal includes at least the first signal part and remaining signal parts in time-divided fashion, as required by claims 1 and 30. Thus, it would not be obvious to one skilled in the art at the time of the invention to modify the apparatus/method for classifying patterns of television programs and commercials as disclosed by Nafeh in view of Nagao et al. and incorporate the system disclosed by Kawara et al. to derive claim 17 that depends from claim 1 or claim 46 that depends from claim 30.

II. Conclusion

In view of the above amendments and remarks, Applicants submit that all claims are clearly allowable over the cited prior art, and respectfully request early and favorable notification to that effect.

Respectfully submitted,

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